AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Original) A method for electrosurgically sealing tissue, comprising the steps of:

applying a first pulse of RF energy to the tissue; and

applying at least one subsequent RF energy pulse to the tissue and keeping constant or varying RF energy parameters of individual pulses of subsequent RF energy pulses in accordance with at least one characteristic of an electrical transient that occurs during the individual RF energy pulses.

2. (Original) A method as in claim 1, wherein the step of applying the first pulse includes a step of selecting characteristics of the first pulse so as not to excessively heat the tissue.

3. (Original) A method as in claim 1, wherein the step of applying the first pulse comprises the steps of:

continuously measuring at least one characteristic of a response of the tissue to the applied first pulse; and

in accordance with the measured characteristic, determining whether to change a set of RF energy parameters to a default set of RF energy parameters.

4. (Original) A method as in claim 3, wherein the default set of RF energy parameters includes parameters selected from the group consisting of a magnitude of a starting power, a magnitude of a starting voltage, a magnitude of a starting current, and pulse width.

5. (Original) A method as in claim 1, wherein the electrical transient is selected from the group consisting of an electric current transient and tissue impedance.

6. (Original) A method as in claim 1, wherein the at least one characteristic of the electrical transient is selected from the group consisting of a rate of change of an electric

current transient, a rate of change of the tissue impedance, and phase rotation of voltage and current.

7. (Original) A method as in claim 1, wherein the at least one characteristic is selected from the group consisting of a current value, a voltage value, a current phase angle, and a tissue impedance value.

8. (Original) A method as in claim 1, wherein the RF energy parameters that are varied for individual pulses of the first and the at least one subsequent RF energy pulses are selected from the group consisting of RF power output, current, voltage, pulse width and duty cycle.

9. (Original) A method as in claim 1, further comprising the step of determining if the tissue responded to the first pulse of RF energy prior to the step of applying at least one subsequent RF energy pulse.

10. (Original) A method as in claim 9, wherein the step of applying at least one subsequent RF energy pulse includes the step of varying at least one of RF starting power, a magnitude of starting current, pulse width, and a magnitude of starting voltage for the at least one subsequent RF energy pulse.

11. (Original) A method as in claim 1, further comprising the steps of:

measuring the at least one characteristic of the electrical transient that occurs at the end of at least the first pulse and the at least one subsequent RF energy pulse;

in accordance with the measured characteristic, determining whether to terminate the method for electrosurgically sealing tissue, or using the measured characteristic to determine a set of RF energy parameters for a subsequent RF energy pulse and repeating the applying step.

12. (Original) A method as in claim 11, wherein the set of RF energy parameters for the subsequent RF energy pulse comprise a magnitude of a starting RF power, a magnitude of a starting current, a magnitude of a starting pulse width, a magnitude of a starting voltage, and a duty cycle.

13. (Original) A method as in claim 11, wherein the electrical transient is an electrical impedance of the tissue.

14. (Original) A method as in claim 13, wherein the step of using the measured characteristic to determine the set of RF energy parameters for the at least one subsequent RF energy pulse comprises a step of using the measured impedance value to readout the set of RF energy parameters from an entry in one of a plurality of lookup tables.

15. (Original) A method as in claim 14, wherein said one of the plurality of lookup tables is selected manually or automatically, based on a choice of an electrosurgical tool or instrument.

16. (Original) A method as in claim 3, further comprising the step of modifying predetermined parameters of the set of RF energy parameters in accordance with a control input from an operator.

17. (Original) A method as in claim 1, further comprising the step of combining an RF energy pulse with the at least one subsequent RF energy pulse.

18. (Original) A method as in claim 1, further comprising the step of terminating a generation of the at least one subsequent RF energy pulse upon a determination that the electrical transient is absent.

19. (Canceled) A system for electrosurgically sealing tissue, comprising an electrosurgical generator comprising an RF energy source and a controller for controlling the operation of an electrosurgical generator, said electrosurgical generator having an output for coupling to a surgical instrument comprising electrodes for coupling RF energy generated by said electrosurgical generator to tissue to be sealed; said controller being operable for causing said electrosurgical generator to apply an initial pulse of RF energy to the tissue and for measuring a value of an electrical characteristic of the tissue in response to the applied initial pulse, said controller being responsive to the measured electrical characteristic for determining an initial set of pulse parameters for at least one subsequent pulse and for then

keeping constant or varying the pulse parameters of individual pulses of further subsequent RF energy pulses in accordance with a change in the electrical characteristic of the tissue as determined from at least one characteristic of an electrical transient that occurs during each individual pulse of the subsequent RF energy pulses.

20. (Canceled) A system as in claim 19, wherein the electrical characteristic is comprised of an electrical impedance.

21. (Canceled) A system as in claim 19, wherein the at least one characteristic of the electrical transient is the rate of change of the electrical transient.

22. (Canceled) A system as in claim 19, wherein said initial set of pulse parameters are selected from the group consisting of a magnitude of a starting power, a magnitude of a starting voltage, a magnitude of a starting current, and pulse width.

23. (Canceled) A system as in claim 19, wherein the pulse parameters that are varied for individual pulses of further subsequent RF energy pulses are selected from the group consisting of RF power output, current, voltage, pulse width and duty cycle.

24. (Canceled) A system as in claim 19, further comprising one of a plurality of pulse parameter lookup tables that is readably coupled to said controller, and wherein said controller, when determining said initial set of pulse parameters, uses said impedance value to readout said initial set of pulse parameters from said one of the plurality of pulse parameter lookup tables.

25. (Canceled) A system as in claim 19, wherein said one of a plurality of pulse parameter lookup tables is selected manually or automatically, based on a choice of an electrosurgical tool or instrument.

26. (Canceled) A system as in claim 19, wherein said controller is responsive to a control input from an operator for modifying any one of said pulse parameters.

27. (Canceled) A system as in claim 19, wherein said controller is responsive to a determination that said electrical transient is absent for terminating a generation of subsequent RF energy pulses.

28. (New) A system for electrosurgically sealing tissue comprising:

means for applying a first pulse of RF energy to the tissue; and

means for applying at least one subsequent RF energy pulse to the tissue and keeping constant or varying RF energy parameters of individual pulses in accordance with at least one characteristic of an electrical transient that occurs during the individual RF energy pulses.

29. (New) A system as in claim 28, wherein the means for applying the first pulse includes means for selecting characteristics of the first pulse so as not to excessively heat the tissue.

30. (New) A system as in claim 28, wherein the means for applying the first pulse comprises:

means for continuously measuring at least one characteristic of a response of the tissue to the applied first pulse; and

means for determining whether to change a set of RF energy parameters, in accordance with the measured characteristic.

31. (New) A system as in claim 30, wherein the default set of RF energy parameters includes parameters selected from the group consisting of a magnitude of a starting power, a magnitude of a starting voltage, a magnitude of a starting current, and pulse width.

32. (New) A system as in claim 28, wherein the electrical transient is selected from the group consisting of an electric current transient and tissue impedance.

33. (New) A system as in claim 28, wherein the at least one characteristic of the electrical transient is selected from the group consisting of a rate of change of an electric current transient, a rate of change of the tissue impedance, and phase rotation of voltage and current.

34. (New) A system as in claim 28, wherein the at least one characteristic is selected from the group consisting of a current value, a voltage value, a current phase angle, and a tissue impedance value.

35. (New) A system as in claim 28, wherein the RF energy parameters that are varied for individual pulses of the RF energy pulses are selected from the group consisting of RF power output, current, voltage, pulse width and duty cycle.

36. (New) A system as in claim 28, further comprising means for determining if the tissue responded to the first pulse of RF energy prior to activating the means for applying at least one subsequent RF energy pulse.

37. (New) A system as in claim 36, wherein the means for applying at least one subsequent RF energy pulse includes means for varying at least one of RF starting power, a magnitude of starting current, pulse width, and a magnitude of starting voltage for the at least one subsequent RF energy pulse.

38. (New) A system as in claim 28, further comprising:

means for measuring the at least one characteristic of the electrical transient that occurs at the end of the first pulse and subsequent RF energy pulses;

means for determining whether to terminate the system for electrosurgically sealing tissue, in accordance with the measured characteristic; and

means for using the measured characteristic to determine a set of RF energy parameters for a subsequent RF energy pulse if the means for determining determines not to terminate the system for electrosurgically sealing tissue.

39. (New) A system as in claim 38, wherein the set of RF energy parameters for the subsequent RF energy pulse comprise a magnitude of a starting RF power, a magnitude of a starting current, a magnitude of a starting pulse width, a magnitude of a starting voltage, and a duty cycle.

40. (New) A system as in claim 38, wherein the electrical transient is an electrical impedance of the tissue.

41. (New) A system as in claim 40, wherein the means for using the measured characteristic to determine the set of RF energy parameters for the subsequent RF energy pulse comprises means for using the measured impedance value to readout the set of RF energy parameters from an entry in one of a plurality of lookup tables.

42. (New) A system as in claim 41, wherein said one of the plurality of lookup tables is selected manually or automatically, based on a choice of an electrosurgical tool or instrument.

43. (New) A system as in claim 30, further comprising means for modifying predetermined parameters of the set of RF energy parameters in accordance with a control input from an operator.

44. (New) A system as in claim 28, further comprising means for combining an RF energy pulse with at least one subsequent RF energy pulse.

45. (New) A system as in claim 28, further comprising means for terminating a generation of subsequent RF energy pulses upon a determination that the electrical transient is absent.